



NOTES

ARENAVIRIDAE

MICROBE OVERVIEW

Taxonomy

- Zoonotic virus family
 - Associated with hemorrhagic fevers, meningoencephalitis
- Comprises > 20 viruses
- Groups
 - Old World viruses (e.g. lymphocytic choriomeningitis virus, Lassa, Lujo)
 - New World viruses (e.g. Junin, Machupo)

Morphology

- Single-stranded RNA virus
- Ribosomes produce sand-like granular appearance under electron microscopy
 - Latin: arena = sand
- Shape varies: pleomorphic–spherical

- Enveloped in lipid membrane with glycoprotein spikes
 - Lipids in membrane → inactivation susceptibility by organic solvents/detergents
 - Also inactivated by temperatures > 55°C/131°F, ↑ ↓ pH, UV light, gamma irradiation

Transmission

- Reservoir
 - Rodents shed virus in urine, feces, saliva, nasal secretion
- Transmission
 - Ingestion, direct contact, aerosolized-particle inhalation → entry into cell by GP1 glycoprotein attachment to cellular receptors → systemic dissemination

LYMPHOCYTIC CHORIOMENINGITIS VIRUS (LCMV)

osms.it/LCMV

PATHOLOGY & CAUSES

- Arenavirus
 - Causes febrile illness with central nervous system (CNS) involvement, congenital infection
- Reservoir
 - Mice (*M. musculus*/*M. domesticus*); occasional human disease outbreak related to pet hamster/guinea pig
- Transmission
 - Ingestion, aerosolized-particle inhalation, transplacentally (infected mother → fetus)
- Post-transmission → 7–14 days incubation → replication in lungs → hematogenous dissemination → strong neurotropism (infects meninges, choroid plexus, ventricular ependyma)

RISK FACTORS

- Infected rodent contact; dwelling/working in rodent habitats
- ↑ risk in substandard housing (e.g. mobile homes, inner-city housing), barns/

VISIT...

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Caliente.COM

outbuildings

- **Peak incidence:** autumn, winter

COMPLICATIONS

- Encephalitis, aseptic meningitis
- **Transplacental infection:** spontaneous abortion, neonatal neurologic deficits, chorioretinitis, seizures, periventricular calcifications, hydrocephalus, microcephaly
- **Rarely:** orchitis, parotitis, myocarditis

SIGNS & SYMPTOMS

- May be asymptomatic/mild flu-like symptoms
- **Prodrome:** headache (retro-orbital), nausea, vomiting
- **Meningitis:** fever, rigors, malaise, myalgia, arthralgia anorexia, photophobia
- **Encephalitis:** focal seizures, cranial nerve palsies, papilledema

DIAGNOSIS

LAB RESULTS

- Cerebrospinal fluid (CSF)
 - ↑ lymphocytes, ↑ protein, ↓ glucose, negative Gram stain

Microbe identification

- Viral culture, polymerase chain reaction (PCR)

Serology

- ↑ antibody titer (IgM, IgG)

TREATMENT

OTHER INTERVENTIONS

Prevention

- Rodent control